

Application No. 10/799,839
Amendment dated August 11, 2006
Reply to Office Action of July 13, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A semiconductor device, comprising:
a drain electrode;
a source electrode;
a channel contacting the drain electrode and the source electrode, wherein the channel includes one or more of a metal oxide including zinc-germanium, zinc-lead, cadmium-germanium, cadmium-tin, cadmium-lead; and
a gate dielectric positioned between a gate electrode and the channel.
2. (Original) The semiconductor device of claim 1, wherein the channel includes one of an amorphous form, a single-phase crystalline form, and a mixed-phase crystalline form.
3. (Original) The semiconductor device of claim 1, wherein the metal oxide includes an atomic composition of metal(A)-to-metal(B) ratio (A:B), wherein A and B are each in a range of about 0.05 to about 0.95.
4. (Original) The semiconductor device of claim 1, wherein the metal oxide includes one or more of zinc-germanium oxide, zinc-lead oxide, cadmium-germanium oxide, cadmium-tin oxide, cadmium-lead oxide.

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5. (Original) The semiconductor device of claim 4, wherein the metal oxide includes an atomic composition of metal(A)-to-metal(B) ratio (A:B), wherein A and B are each in a range of about 0.05 to about 0.95.

6. (Original) The semiconductor device of claim 1, wherein the channel includes one or more compounds of the formula $A_xB_xC_xO_x$ wherein each A is selected from the group of Zn, Cd, each B is selected from the group of Ge, Sn, Pb, each C is selected from the group of Zn, Cd, Ge, Sn, Pb, each O is atomic oxygen, each x is independently a non-zero integer, and wherein each of A, B, and C are different.

7. (Original) The semiconductor device of claim 6, wherein the one or more compounds of the formula $A_xB_xC_xO_x$ includes an atomic composition of ratio A:B:C, wherein A, B, and C, are each in a range of about 0.025 to about 0.95.

8. (Original) The semiconductor device of claim 1, wherein the metal oxide includes one or more of zinc-germanium-tin oxide, zinc-tin-lead oxide, zinc-germanium-lead oxide, zinc-cadmium-germanium oxide, zinc-cadmium-tin oxide, zinc-cadmium-lead oxide, cadmium-germanium-tin oxide, cadmium-tin-lead oxide, cadmium-germanium-lead oxide.

9. (Original) The semiconductor device of claim 8, wherein the metal oxide includes an atomic composition or ratio A:B:C, wherein A, B, and C, wherein A, B, and C, are each in a range of about 0.025 to about 0.95.

10. (Original) The semiconductor device of claim 6, wherein the one or more compounds of formula $A_xB_xC_xO_x$ includes D_x , to form a compound of the formula $A_xB_xC_xD_xO_x$ wherein D is selected from the group of Zn, Cd, Ge, Sn, Pb, each O is atomic oxygen, each x is independently a non-zero integer, and wherein each of A, B, C, and D are different.

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11. (Original) The semiconductor device of claim 10, wherein the one or more compounds of the formula $A_xB_xC_xD_xO_x$ includes an atomic composition of ratio A:B:C:D, wherein A, B, C, and D, are each in a range of about 0.017 to about 0.95.

12. (Original) The semiconductor device of claim 1, wherein the metal oxide includes one or more of zinc-germanium-tin-lead oxide, zinc-cadmium-germanium-tin oxide, zinc-cadmium-germanium-lead oxide, zinc-cadmium-tin-lead oxide, and cadmium-germanium-tin-lead oxide.

13. (Original) The semiconductor device of claim 12, wherein the metal oxide includes an atomic composition or ratio A:B:C:D, wherein A, B, C, and D, are each in a range of about 0.017 to about 0.95.

14. (Original) The semiconductor device of claim 10, wherein the one or more compounds of formula $A_xB_xC_xD_xO_x$ includes E_x , to form a compound of the formula $A_xB_xC_xD_xE_xO_x$ wherein E is selected from the group of Ge, Sn, Pb, each O is atomic oxygen, each x is independently a non-zero integer, and wherein each of A, B, C, D, and E are different.

15. (Original) The semiconductor device of claim 14, wherein the one or more compounds of the formula $A_xB_xC_xD_xE_xO_x$ includes an atomic composition of ratio A:B:C:D:E, wherein A, B, C, D, and E, are each in a range of about 0.013 to about 0.95.

16. (Original) The semiconductor device of claim 1, wherein the metal oxide includes one or more of zinc-cadmium-germanium-tin-lead oxide.

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17. (Original) The semiconductor device of claim 16, wherein the metal oxide includes an atomic composition or ratio A:B:C:D:E, wherein A, B, C, D, and E, are each in a range of about 0.013 to about 0.95.

18. (Currently Amended) A semiconductor device, comprising:

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